18 BARBITURATE METHODOLOGY

18.1 Brief Pharmacology: Central nervous system depressants commonly known as "Downers"

18.2 Drug Group Examples: Butalbital, pentobarbital, secobarbital, allobarbital, amobarbital, butabarbital, barbital, and phenobarbital

18.3 Types of Samples:

18.3.1 Most barbiturates are found in pharmaceutical preparations.

18.4 Scheduling:

- Schedule II — Amobarbital, secobarbital, and pentobarbital
- Schedule III — Most barbiturates
- Schedule IV — Phenobarbital
- Schedule VI or non-controlled — Some preparations of phenobarbital, butalbital, and other such barbiturates are specifically exempted from control.
- Appropriate caution must be exercised when determining their control status. Any questions should be answered by consulting appropriate compendia references such as the PDR, Poison Control, DEA Logo Index and the appropriate state or federal codes, as well as, informing the section supervisor. If any question remains, DO NOT include the schedule in your report.

18.5 Extraction: May be extracted from either acidic or weak basic aqueous solutions with organic solvents.

18.6 Color Tests Results:

18.6.1 Dille-Koppanyi - This is a two part test. Place 2 drops of DK1 reagent in a well. Add sample. Add 1 drop of DK2 reagent. When doing multiple samples, they should be separated to avoid cross-contamination due to reagent spreading. Barbiturates give a purple color. False positives from: glutethimide, theophylline and hydantoins.

18.6.2 $Co(SCN)_2$ - faint blue on barbiturates with an unsaturated side chain (i.e., butalbital).

18.6.3 Parri - blue

18.7 TLC:

18.7.1 Baths: The isopropyl ether bath (TLC7) will separate most of the barbiturates from one another.

18.7.2 Detection sprays:

18.7.2.1 $KMnO_4$ reacts with barbiturates with an unsaturated side chain to yield a yellow spot on a purple background.

18.7.2.2 $HgSO_4$ - spray very heavily to give light spots on an off-white background.

18.7.2.3 Diphenylcarbazone - overspray for $HgSO_4$ gives pink spots for barbiturates.

18.8 UV:

18.8.1 Extraction of the sample may be necessary to get a good spectrum.

18.8.2 Barbiturates should be run in both acidic and basic media due to their characteristic bathochromic shift as the solution becomes basic.

18.9 GC:

18.9.1 Extraction or derivatization of the sample may be necessary to get good chromatographic peak shape.

18.9.2 Alkyl Derivative: trimethylanilinium hydroxide (TMAH)

18.9.2.1 See GC section 10 for procedure.

18.9.2.2 Formation of the methyl derivative will generally decrease the retention time significantly.

18.10 GC/MS:

18.10.1 Barbiturates most often do not exhibit a molecular ion peak and require derivitization.

18.11 FTIR

18.11.1 Extraction may be necessary to obtain a useful FTIR spectrum.

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